

In the Claims

1. (currently amended) An apparatus for operably conveying heat away from a heat source, said apparatus comprising:

(a) a thermally conductive substrate having first and second opposed sides and a thickness defined between said first and second opposed sides, the thickness of said substrate forming a planar boundary thereof; and

(b) an insert portion disposed in said substrate and being positioned so as not to extend beyond said planar boundary, said insert portion having a thermal conductivity value of at least 1.5 times that of said substrate along at least two axial directions, with one of such axial directions extending substantially perpendicularly to said first and second opposed sides, said substrate being operably disposed adjacent to the heat source such that at least a portion of said insert portion is in immediate thermal contact with such heat source, said insert portion including one or more arms extending radially outwardly from a first location in said substrate that is immediately adjacent to, and in thermal contact with, the heat source, said one or more radial arms extending within said planar boundary.

2. (original) An apparatus as in Claim 1 wherein said insert portion has a thermal conductivity value of at least 2.5 times that of said substrate along at least two of such axial directions.

3. (original) An apparatus as in Claim 1 wherein said substrate is selected from the group consisting of copper, copper tungsten alloy, aluminum, silver, gold, alumina, aluminum nitride, boron nitride, epoxy, and engineering thermoplastics.

4. (original) An apparatus as in Claim 1 wherein said insert portion is selected from the group consisting of

diamond, highly oriented pyrolytic graphite, pitch based graphite, aluminum, copper, and copper tungsten alloy.

5. (original) An apparatus as in Claim 1 wherein said insert portion extends at least 10% through said substrate thickness from said first side thereof.

6. (cancelled)

7. (currently amended) An apparatus as in Claim 6 1 wherein said radial arms of said insert portion have a lateral width of between about 30% and about 70% of the diameter of a thermal footprint generated by the heat source.

8. (currently amended) An apparatus as in Claim 6 1 wherein said radial arms of said insert portion have a length of greater than about 150% of the diameter of a thermal footprint generated by the heat source.

9. (original) An apparatus as in Claim 1 wherein said substrate is a generally planar body adapted for securement to various heat generating devices.

10. (original) An apparatus as in Claim 1 wherein said substrate includes a plurality of fins extending outwardly from said second surface thereof, with said first surface of said substrate being operably coupled to the heat source.